

CLAIMS:

1. An N-port signal divider/combiner for dividing and/or combining signals in N-1 frequency bands, including a common line; and N-1 signal ports each coupled to the common line by a respective transmission line, each transmission line having one or more stubs extending from the transmission line, each stub having a length selected so that the stub acts as a notch filter at a respective rejection wavelength, wherein at least one of the stubs is a short-circuit stub, and at least one of the stubs is an open-circuit stub.
2. A signal divider/combiner according to claim 1 wherein the distance between the common line and each stub is approximately $\lambda/4$, where λ is the rejection wavelength of the stub.
3. A signal divider/combiner according to claim 1 wherein the common line and transmission lines are formed in a microstrip configuration.
4. A signal divider/combiner according to claim 1 wherein the signal divider/combiner is a diplexer in which N=3.
5. A signal divider/combiner according to claim 1 wherein one of the rejection wavelengths is a Global Positioning System L1 frequency, and one of the rejection wavelengths is a Global Positioning System L2 frequency.
6. A multiband antenna including N-1 antennas each dimensioned to transmit and/or receive radiation in a respective frequency band, and an N-port signal divider/combiner according to claim 1, wherein each antenna is coupled to a respective transmission line of the N-port signal divider/combiner.
7. An amplifier including one or more N-port signal divider/combiners according to claim 1.
8. An N-port signal divider/combiner for dividing and/or combining signals in N-1 frequency bands, including a common line; and N-1 signal ports each coupled to the common line by a respective transmission line, each transmission line having one or more stubs extending from the transmission line, wherein a first one of the stubs has a length $n\lambda_1/4$ selected so that the stub acts as a notch filter with a reject band including a first wavelength λ_1 , a second one of the stubs has a length $m\lambda_2/4$ selected so that the stub acts as a notch filter with a reject band including a second wavelength λ_2 , and wherein n and m are different integers.

9. A signal divider/combiner according to claim 8 wherein the first one of the stubs is an open-circuit stub, the second one of the stubs is a closed-circuit stub, n is an odd integer, and m is an even integer.

10. A signal divider/combiner according to claim 8 wherein the first one of the stubs is an open-circuit stub with a length $3\lambda_1/4$, and the second one of the stubs is a closed-circuit stub with a length λ_2 .

11. A signal divider/combiner according to claim 8 wherein the distance between the common line and each stub is approximately $\lambda_i/4$, where λ_i is the wavelength in the reject band of the notch filter formed by the stub.

12. A signal divider/combiner according to claim 8 wherein the common line and transmission lines are formed in a microstrip configuration.

13. A signal divider/combiner according to claim 8 wherein the signal divider/combiner is a diplexer in which $N=3$.

14. A signal divider/combiner according to claim 8 wherein one of the rejection wavelengths is a Global Positioning System L1 frequency, and one of the rejection wavelengths is a Global Positioning System L2 frequency.

15. A multiband antenna including a first antenna dimensioned to transmit and/or receive radiation at a first wavelength λ_1 , a second antenna dimensioned to transmit and/or receive radiation at a second wavelength λ_2 , and a signal divider/combiner including a common line; first and second transmission lines coupling the first and second antennas respectively to the common line; a first stub extending from the first transmission line and having a length $n\lambda_2/4$ selected so that the stub acts as a notch filter with a reject band including the second wavelength λ_2 ; and a second stub extending from the second transmission line and having a length $n\lambda_1/4$ selected so that the stub acts as a notch filter with a reject band including the first wavelength λ_1 , wherein n and m are different integers.

16. An amplifier including one or more N-port signal divider/combiners according to claim 8.

17. A method of operating an N-port signal divider/combiner according to claim 8, the method including rejecting signals at the first wavelength λ_1 with the first stub; and rejecting signals at the second wavelength λ_2 with the second stub.